York Beach Quadrangle, Maine

Surficial geologic mapping by
Patrick B. O'Toole
J. Michael Clinch
Cornelia C. Cameron

Digital cartography by:
Susan S. Tolman

Robert G. Marvinney
State Geologist

Cartographic design and editing by:
Robert D. Tucker

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Maine Geological Survey

Address: 22 State House Station, Augusta, Maine 04333
Telephone: 207-287-2801 **E-mail:** mgs@maine.gov
Home page: http://www.maine.gov/doc/nrimc/nrimc.htm

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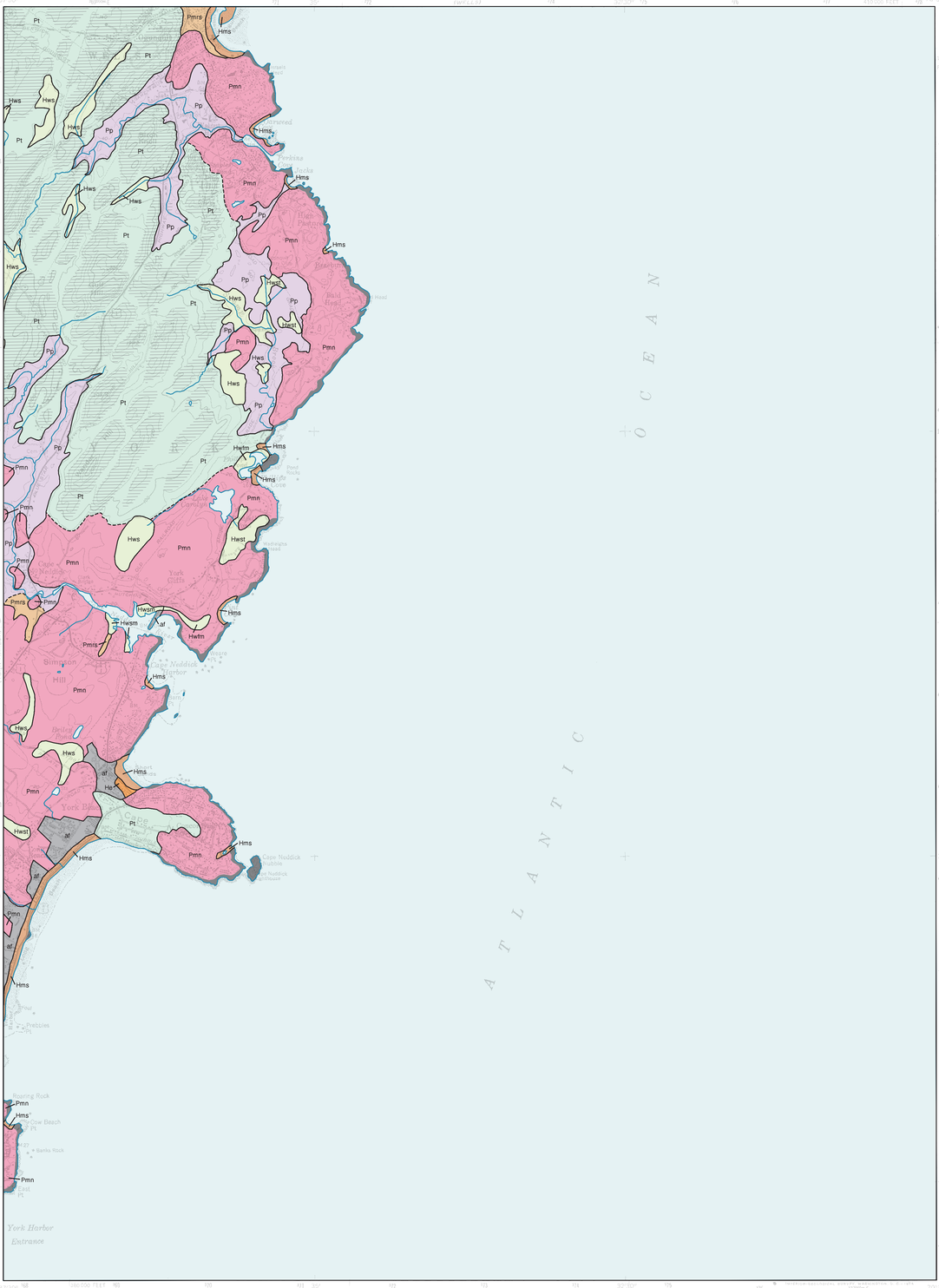
For additional information,
see Open-File Report 99-137.

Surficial Geology



SOURCES OF INFORMATION

Surficial geologic mapping by Patrick B. O'Toole and J. Michael Clinch completed during the 1986 field season; funding for this work provided by the U. S. Geological Survey COGEOMAP program. Wetlands data provided in part by Cornelia C. Cameron, U.S. Geological Survey, 1987. Geologic unit designations and contacts revised and matched to adjacent quadrangles in 1999 by MGS geologists.

Quadrangle Location

SCALE 1 : 24,000

1 0 1 MILE
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
1 0 1 KILOMETER

CONTOUR INTERVAL 20 FEET

TRUE NORTH

Topographic base from U.S. Geological Survey York Beach quadrangle, scale 1:24,000 using standard U.S. Geological Survey topographic map symbols.

The use of industry, firm, or local government names on this map is for location purposes only and does not impute responsibility for any present or potential effects on the natural resources.

Hws **Wetland, swamp*** - Peat, muck, silt, and clay. Poorly drained area with variable tree cover; often has standing water.

Hwfm **Wetland, freshwater marsh*** - Peat, muck, silt, and clay. Poorly drained grassland; often has standing water.

Hwsm **Wetland, salt marsh** - Peat, muck, silt, and clay. Coastal marsh; subject to tidal flooding.

He **Eolian deposit** - Sand dunes near the ocean shore.

Hms **Marine shoreline deposit** (beach) - Sand and gravel deposited by marine processes along the ocean shore.

Pmn **Marine nearshore deposits** - Thin, discontinuous till, water-laid sediments, and/or wetland deposits overlying bedrock. Occurs in coastal areas where glacial sediments were largely eroded and redeposited during regressive phase of late-glacial marine submergence. Bedrock outcrops are locally abundant.

Pmrs **Marine regressive sand deposits** - Sand deposited in the sea during regressive phase of marine submergence.

Pp **Presumpscot Formation** - Massive to laminated, gray to bluish-gray silt and clay. Weathers to brownish or greenish-gray. Locally may include minor sand and gravel. Occurs as blanket deposit over bedrock and older glacial sediments. Deposited on sea floor during late-glacial marine submergence.

Pt **Till** - Loose, poorly sorted, generally nonstratified mixture of sand, pebbles, cobbles, and boulders. Deposited from glacial ice. Forms a blanket over bedrock. Commonly less than 10 ft (3 m) thick.

Bedrock outcrops - Gray areas indicate barren ledge. Ruled pattern indicates areas where surficial sediments are generally less than 10 ft (3 m) thick.

af **Artificial fill** - Composed of till, sand and gravel, rock, or various man-made materials.

Contact - Boundary between map units. Dashed where location is very approximate.

*NOTE: Wetland symbols followed by "t" indicate areas where peat deposits probably do not constitute a significant commercial resource, either because they are thin (< 1.5 m), or they have an ash content greater than 25 percent. Symbols followed by "p" indicate peat deposits that are thicker (generally > 1.5 m), with ash content less than 25 percent, and thus may be suitable for commercial applications.

USES OF SURFICIAL GEOLOGY MAPS

A surficial geology map shows all the loose materials such as till (commonly called hardpan), sand and gravel, or clay, which overlie solid ledge (bedrock). Bedrock outcrops and areas of abundant bedrock outcrops are shown on the map, but varieties of the bedrock are not distinguished (refer to bedrock geology map). Most of the surficial materials are deposits formed by glacial and deglacial processes during the last stage of continental glaciation, which began about 25,000 years ago. The remainder of the surficial deposits are the products of postglacial geologic processes, such as river floodplains, or are attributed to human activity, such as fill or other land-modifying features.

The map shows the areal distribution of the different types of glacial features, deposits, and landforms as described in the map explanation. Features such as striations and moraines can be used to reconstruct the movement and position of the glacier and its margin, especially as the ice sheet melted. Other ancient features include shorelines and deposits of glacial lakes or the glacial sea, now long gone from the state. This glacial geologic history of the quadrangle is useful to the larger understanding of past earth climate, and how our region of the world underwent recent geologically significant climatic and environmental changes. We may then be able to use this knowledge in anticipation of future similar changes for long-term planning efforts, such as coastal development or waste disposal.

Surficial geology maps are often best used in conjunction with related maps such as surficial materials maps or significant sand and gravel aquifer maps for anyone wanting to know what lies beneath the land surface. For example, these maps may aid in the search for water supplies, or economically important deposits such as sand and gravel for aggregate or clay for bricks or pottery. Environmental issues such as the location of a suitable landfill site or the possible spread of contaminants are directly related to surficial geology. Construction projects such as locating new roads, excavating foundations, or siting new homes may be better planned with a good knowledge of the surficial geology of the site. Refer to the list of related publications below.

OTHER SOURCES OF INFORMATION

1. O'Toole, P. B., and Clinch, J. M., 1999, Surficial geology of the York Beach 7.5-minute quadrangle, York County, Maine: Maine Geological Survey, Open-File Report 99-137, 3 p.
2. O'Toole, P. B., and Clinch, J. M., 1998, Surficial materials of the York Beach quadrangle, Maine: Maine Geological Survey, Open-File Map 98-167.
3. Thompson, W. B., 1979, Surficial geology handbook for coastal Maine: Maine Geological Survey, 68 p. (out of print)
4. Thompson, W. B., and Borns, H. W., Jr., 1985, Surficial geologic map of Maine: Maine Geological Survey, scale 1:500,000.
5. Thompson, W. B., Crossen, K. J., Borns, H. W., Jr., and Andersen, B. G., 1989, Glaciomarine deltas of Maine and their relation to late Pleistocene-Holocene crustal movements, *in* Anderson, W. A., and Borns, H. W., Jr. (eds.), Neotectonics of Maine: Maine Geological Survey, Bulletin 40, p. 43-67.